EXHIBIT A

ATTACHMENT B

Our Lady Help of Christians School

"TO EDUCATE FOR LIFE"

2024 DARWIN AVE   LOS ANGELES, CALIF. 90031   (213) 222-3913

Principal and Staff.
O.L.H.C.
2024 Darwin Ave.
L.A. Ca. 90031

Instructional Television
Archdiocese of Los Angeles.
3424 Wilshire Blvd.
L.A. Ca. 90010

On behalf of the teachers and students at "Our Lady Help of Christians School" would you please consider the continued broadcasting of the programs for our school. A very large percentage of our students, are Inner-city dwellers and very often lack many educational resources. Many of the children are fascinated by many of the varied approaches to various subjects.
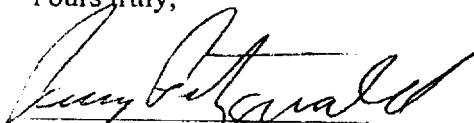
Without this type of broadcasting programming many educational benefits and excellent instruction will be lost to our children. Students' interests are very strong in these areas.
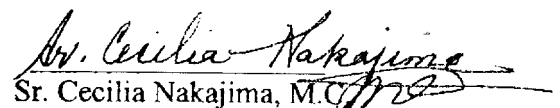
A. Morality and Life
B. 1) Science
    2) Math
    3) Language Arts/ speech
    4) Social studies and geography

I hope you will decide to carry the programs. Many families will be grateful for this chance for higher education.

Thank you.

Yours truly,

Mr. Terry Fitzgerald
Staff Representative.

Sr. Cecilia Nakajima, M.C.
Principal.

Our Lady Help of Christians School

"TO EDUCATE FOR LIFE"

2024 DARWIN AVE   LOS ANGELES, CALIF. 90031   (213) 222-6791801.
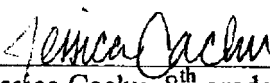
To whom it may concern,

We were recently informed that you would be promptly removing our instructional television. I feel it necessary to oppose to this motion for the following reasons:

1. Every day our students tune into these channels and it educates them.
2. As well as helping their overall understanding they give the students an opportunity to take a break from their work and relax while still learning and not wasting time.
3. Some shows even tend to deal with issues such as drugs; this is very beneficial to the student's future.

In the act of removing the satellite, the students at our lady help of Christians will be crushed. Not only that, but you will be taking a little more away from their education. So, please take this into consideration before you make any final decision.

Thank you.

Sincerely,

Jessica Cachu   _Crystal Arceo_

Jessica Cachu, 8th grade student   Crystal Arceo, 8th grade student

Our Lady Help of Christians School

"TO EDUCATE FOR LIFE"

2024 DARWIN AVE   LOS ANGELES, CALIF. 90031   (213) 222-3913

February 16, 2001

To whom it may concern,

I have been using instruction television for many many years. Many teachers and students in our school have benefited from this program. It has been beneficial in many of the subject areas. It has motivated the students and stimulated interest in students to learn more in different areas. It has supplemented our teaching lessons and created interesting discussions in the classroom.

This is the only program available that provides a wide selection of different interests in our school. It is an excellent tool for teaching adds depth and knowledge to the teaching/ learning experience. We do not only use this program but we need it.
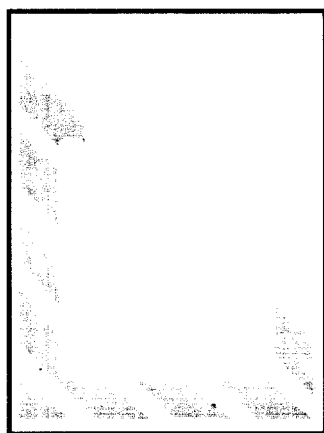
Thank you.

E. Mc Dougall
First grade teacher.

EXHIBIT A

ATTACHMENT C

Strategic Technology Integration Plan

Archdiocese of Los Angeles
Department of Catholic Schools

April 1998

Table of Contents

Executive Summary

This plan outlines the needs and strategies for integrating technology into the curriculum of the Catholic schools in the Archdiocese of Los Angeles. Located in southern California, the schools serve over 100,000 students in five pastoral regions. Like most schools, they do not have sufficient budgets for large technology investments. As a group, the schools have student-to-computer ratios higher than state and national averages and staff technology development is believed to be below the state average. The Archdiocese currently maintains a data network with limited capability and transmits video to schools via its existing ITFS network.

In order to bring technology to its classrooms, the Archdiocese has developed a Strategic Technology Integration Initiative. Based on a two-tiered foundation of Archdiocesan and individual school plans, this initiative outlines the seven goals for each school to achieve as it brings technology into its classrooms. These goals are for technology to 1) maximize student learning, 2) address various student learning styles, 3) prepare students to function in today's high-tech society, 4) prepare staff, 5) simplify classroom management, 6) reduce administrative burdens, and 7) maximize the use of limited resources.

These goals will be realized through a three-element strategy composed of technology tools, methods, and connections. Technology tools are the hardware and software used to educate students; methods integrate technology with the teaching and learning process; and connections represent the ability of a classroom to interact with other classrooms and the Internet. For these three strategies to be effective, professional development is required. Professional development guides educators in how, when, and why to use technology. The Department of Catholic Schools has developed guidelines for professional development. These guidelines include in-service activities, exposure to new technologies, on-site training, and incentives for extracurricular technology studies.

Based on the initiative's goals, this plan identifies near-term technology directions based on the Archdiocese's existing ITFS system and a new Digital Multimedia Server System (DMSS). The ITFS data network may initially consist of a hybrid network, utilizing the existing ITFS system and a separate ISP. Pending FCC approval, the Archdiocese may construct a two-way data system and eliminate the need for third-party ISPs. The DMSS will serve the multimedia needs of instructors at various schools.

For individual schools participating in the technology integration initiative, technology compatibility guidelines have been developed for specific technology elements such as network speeds and computer operating systems. These guidelines enable schools to share more resources. The Department of Catholic Schools also has developed criteria for individual school technology plans.

To measure the success of this initiative, evaluation techniques will be developed by the Department of Catholic Schools. Evaluation provides feedback to educators on the use of technology. Evaluation is important to keeping technology integration economical, useful, and goal-oriented.

---

1 Introduction

The purpose of this strategic technology integration plan is to outline the needs, directions and strategies for integrating technology into the curriculum of the Catholic schools within the Archdiocese of Los Angeles. This plan is the higher level of a two-tiered blue-print. Catholic schools within the Archdiocese will have their own plans. Each individual school plan will be interwoven with this global plan.
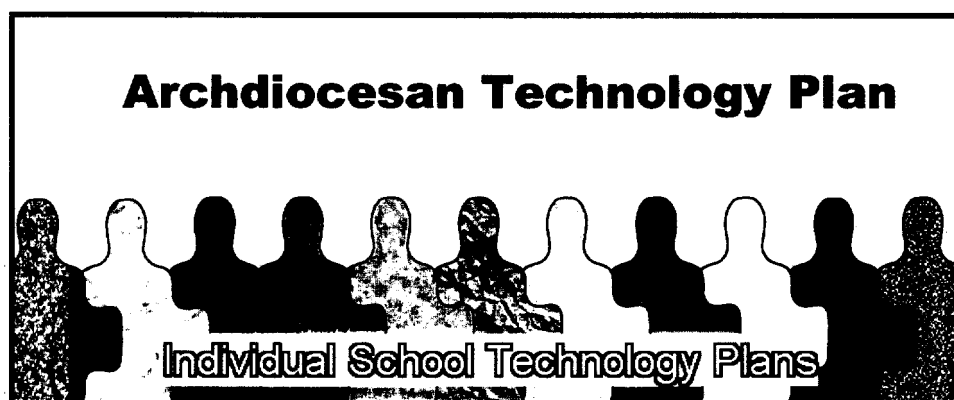
This plan describes the Archdiocese's setting, the current status of technology deploy-ment in the Archdiocese, the strategic technology integration initiative of the Archdiocese, the proposed Archdiocesan infrastructure, guidelines for individual school technology initiatives, and the criteria for individual school technology plans. The strate-gic technology integration initiative is the cornerstone of this plan. The following diagram is a graphic representation of this report's structure.
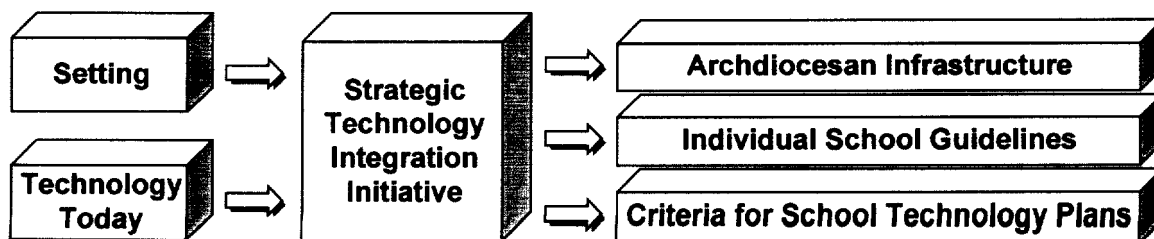
2 Setting

This section contains a brief overview of the Archdiocese's location, organization, students, and school facilities. This information is intended to establish the framework within which the Archdiocese and the individual schools must work. An assessment of current technology deployment and integration within the Archdiocese is presented in the next section of this report.

2.1 Location

The Archdiocese comprises three counties in the southern part of California: Los Angeles, Ventura, and Santa Barbara counties. The area served by the Archdiocese represents 8,762 square miles (22,430 square kilometers) of territory. As of January 1995, the total Catholic population in this area was 3,595,414 out of a total population of 10,330,409.

There are 284 parishes located in 120 cities throughout the area served by the Archdiocese. There are also nineteen missions and chapels and nine Easter Rite Churches.

2.2 Organization

The Archdiocese is divided into five pastoral regions: Our Lady of the Angels, Santa Barbara, San Fernando, San Gabriel, and San Pedro.

Catholic schools within the Archdiocese exercise site-based management, within the parameters of budget and local constraints. Like most schools, Archdiocesan, parochial, and private schools lack funding for major commitments to progress in technology planning and acquisition.

2.3   *Students*

As a group, the Catholic schools in the Archdiocese represent one of the three largest school systems in California in either the public or private sector. The schools serve 100,510 students. There are a total of 230 Catholic elementary schools serving 70,414 students and there are 51 Catholic High Schools serving 30,096 students. As shown below, the schools are distributed throughout the Archdiocese's five pastoral regions. The largest concentration of students is in the San Gabriel region.

Student Enrollment By Region and School Type
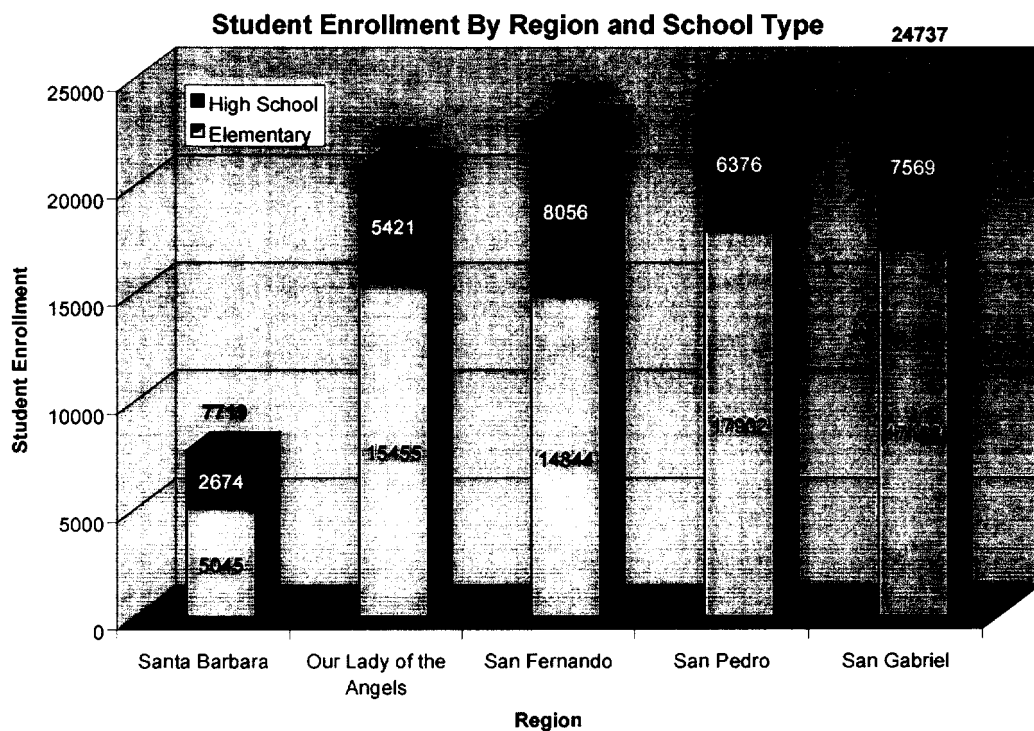
Many students are English-limited, language impaired, from multi-ethnic backgrounds, and economically deprived. As educators become more sophisticated, they are recognizing a wider diversity in student needs. An increase in classroom technology integration will help educators fine-tune their curriculum to meet the individual learning styles of different students.

2.4 Facilities

Before undertaking a new technology initiative, a school must carefully determine what renovations to its physical plant will be required. Some schools will require major renovations in order to deploy adequate computer networks. These renovations may include electrical wiring, heating and air conditioning upgrades, new ceilings, asbestos removal, and additional cabling. The funding requirements associated with these renovations limit many schools from taking advantage of new technologies.

3 Technology Today

Integral to understanding future technology plans is an understanding of the current status of technology deployment in the Archdiocese. Below are brief overviews of computers and networks, staff development, existing data and video networks, and the technology infrastructure at the Archdiocesan Catholic Center (ACC). The information presented in this section pertaining to the use of technology in Catholic schools is derived from the 1997-98 Archdiocesan Technology Survey. Copies of this report may be obtained by contacting the Department of Catholic Schools.

3.1 Computers and LANs

Computers are found in nearly every Catholic school within the Archdiocese. The majority of the computers are found in computer labs and media centers. Many classrooms also have computers. In fact, it is estimated that more than three-fourths of the classrooms have computers. As a group, the schools in the Archdiocese have a student-to-computer ratio of approximately 11.3:1. In comparison, the national average student-to-computer ratio is 7.0:1 (Market Data Retrieval, 1997.)

Another typical benchmark is the student-to-multimedia computer ratio. Generally, a multimedia computer is defined as a computer equipped with at least 16 megabytes of RAM, a CD-ROM, and a sound card with speakers. Roughly one-third of the computers in the Archdiocese are multimedia. The number of students per multimedia computer in the Archdiocese is estimated to be 36. The state of California has an average of 27 students per multimedia computer (Education Week, Nov. 17, 1997.)

Computer networks are another important aspect of the computer utilization in schools. The current growth in the availability of computer networks is dramatic. According to the 1996-97 Archdiocesan Technology Survey, in 1997 23% of schools in the Archdiocese

had local area networks (LANs.) In 1998, this figure has increased to 33% of schools. This growth is expected to continue into the foreseeable future.

Students Per Computer

Archdiocese of LA	National Average
11.3	7.0

Students Per Multimedia Computer

Archdiocese of LA	California State Average
36.0	27.0
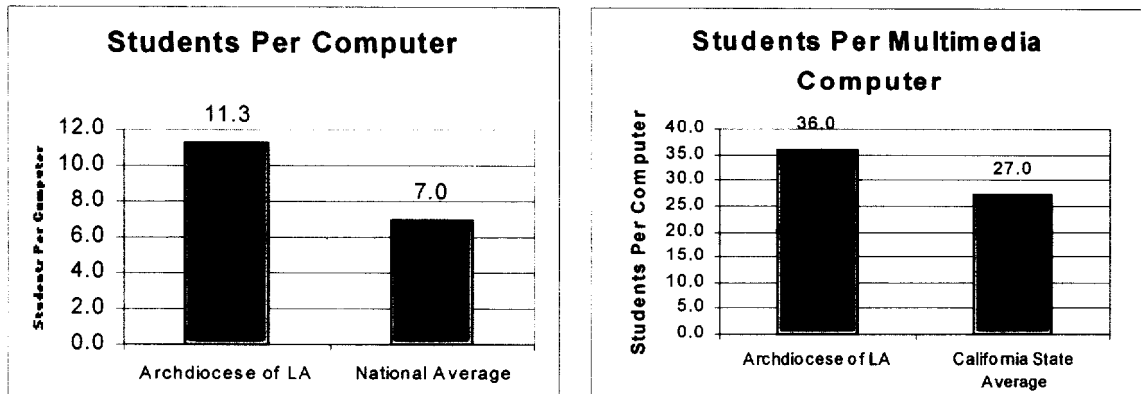
3.2 School Staffing and Staff Development

There are positive indicators that technology is being used in the teaching and learning process. More than 60% of the schools report using computers to aid in student classroom instruction, and more than 20% of the schools report Internet usage in their classrooms.

Little quantitative data is available to document the technology readiness of the faculty and staff at the Catholic schools within the Archdiocese. It is believed that the portion of teachers having received formal technology training does not exceed the California state average of fifteen percent (Education Week, Nov. 17, 1997.)
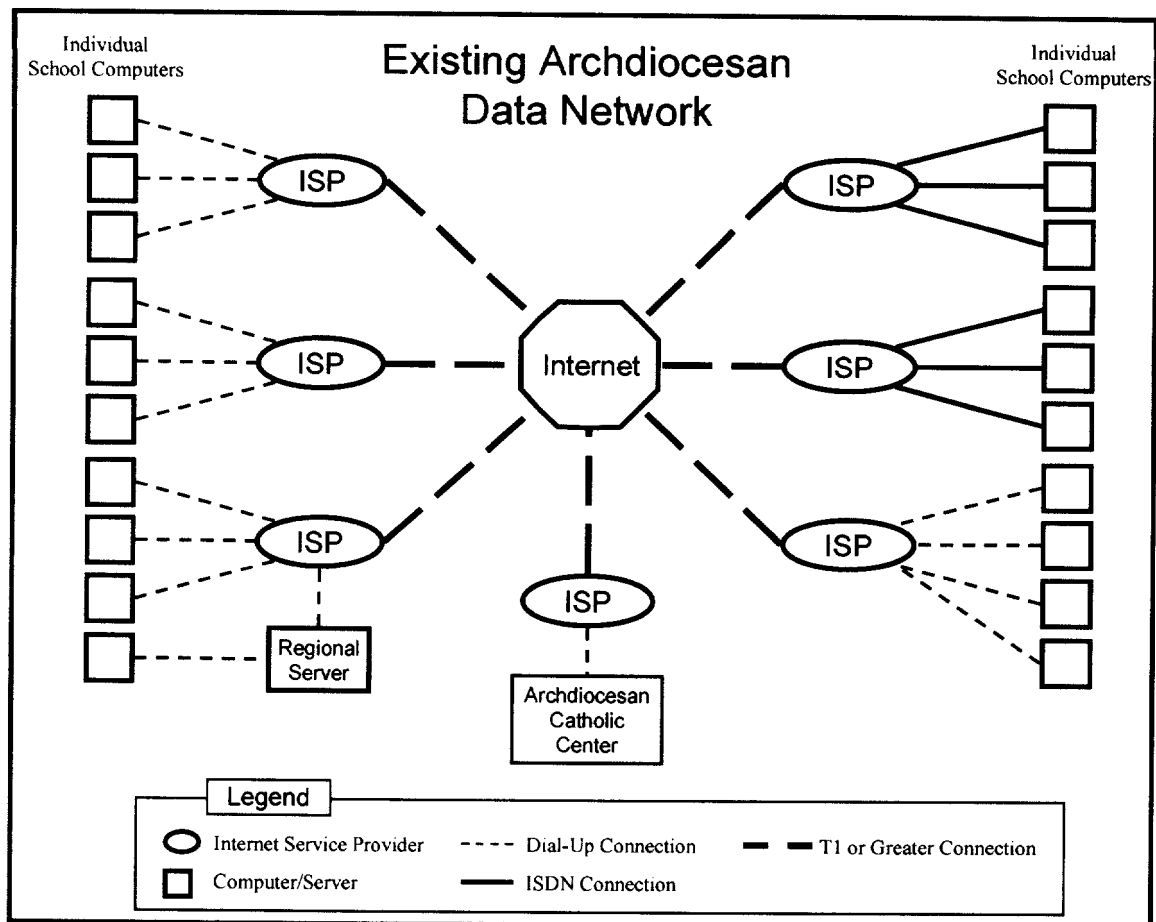
Anecdotal information indicates that many teachers feel inadequately prepared to present curriculum that integrates technology. Staff members often are frustrated by the lack of resources and limited staff development opportunities to help them master technology. School technology plans should address this need for increased teacher technology training.

3.3   *Existing Archdiocesan Data Network*

Today's computer network infrastructure is a collection of independent computers that periodically connect to one another and exchange messages. Because there are no continuous connections, messages often take hours, or even days, to reach schools. The schools and administrative offices of the Archdiocese exchange e-mail in one of two ways:

1) The servers in almost all the schools connect to ISPs directly. During this regularly-scheduled connection, the servers exchange e-mail messages. Currently, this is the preferred method for sharing messages because it is efficient and cost-effective.

2) In a handful of schools, computers periodically connect to one of the five regional-office servers running remote-access services and Microsoft Exchange Server. When connected, the servers exchange e-mail messages. In turn, the regional-office servers connect to ISPs and upload and download e-mail messages. This method is more costly and less efficient than the direct ISP method.

The following layout is a representation of the existing network infrastructure. Based on the 1997-98 school technology survey, nearly 100% of the schools in the Archdiocese have some type of Internet connection. The majority of these are dial-up connections; however, about one-third of the schools have ISDN connections.

Existing Archdiocesan Data Network

Individual School Computers

Individual School Computers

ISP

ISP

ISP

ISP

Internet

ISP

ISP

ISP

Regional Server

Archdiocesan Catholic Center

Legend

| ⬭ Internet Service Provider | ---- Dial-Up Connection | ▬ ▬ T1 or Greater Connection |
| □ Computer/Server | —— ISDN Connection | |

3.4 Existing Archdiocesan Video Network

The Archdiocese currently uses Instructional Television Fixed Service (ITFS) technology to deliver video content to its schools. The National ITFS Association describes this technology as follows:

> ITFS is a band of twenty (20) television channels available to be licensed by the FCC to local credit-granting educational institutions. The channels can be used solely to deliver instruction, or in partnership with companies (Wireless Cable) which deliver a subscriber-based video service that competes with land-based cable television systems to deliver entertainment programming.
>
> Because ITFS channels have a relatively short range (20 to 35 miles), the full allocation of twenty (20) channels is usually available to be used by

school systems, colleges and universities in most communities from small and mid-sized communities to the largest urban areas.

The Archdiocese currently maintains an analog (NTSC video and one channel of audio) television studio system for the broadcast of six channels of ITFS programming to its schools. The analog system consists of about 3,000 hours of programming stored on U-Matic tape, almost 500 hours of programming stored on VHS tape, six U-Matic tape recorder/players, six VHS recorder/players, a 40-in by 20-out audio/video switcher, and other assorted studio equipment such as character generators, time-base correctors, audio-mixers, and master video processors. The ITFS channels are linked to transmitter sites on Mt. Wilson and South Mountain via analog microwave STL transmitters. An analog microwave STL transmitter connecting South Mountain and Broadcast Peak is awaiting licensing by the FCC.

In November 1996, the Archdiocese entered the digital era by integrating its broadcast system with Pacific Bell Video Services' (PBVS) digital MMDS network. The STL receive site at Mt. Wilson now interfaces with Divicom MPEG-2 video/audio encoders feeding into the PBVS ATM network, which is broadcast to set-top units on the ITFS interactive band.
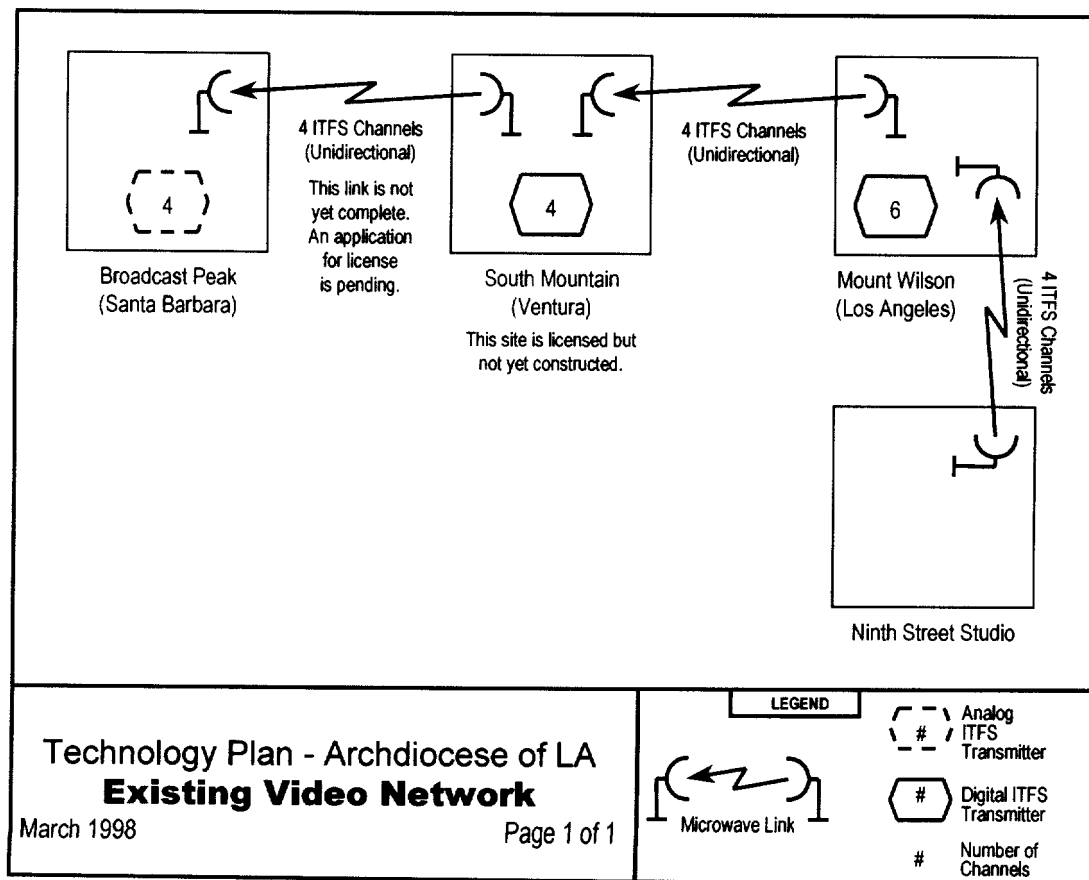
There are a total of one hundred and fifteen schools which currently receive the ITFS transmissions. The following table summarizes the number of ITFS-equipped schools by pastoral region.

Total ITFS Equipped Schools by Region

Region	# of ITFS Equipped Schools
Los Angeles	30
San Fernando	14
San Gabriel	32
San Pedro	39
Santa Barbara	0
Total	**115**

The following diagram shows the existing video network.

Broadcast Peak
(Santa Barbara)

4 ITFS Channels
(Unidirectional)

This link is not
yet complete.
An application
for license
is pending.

South Mountain
(Ventura)

This site is licensed but
not yet constructed.

4 ITFS Channels
(Unidirectional)

Mount Wilson
(Los Angeles)

4 ITFS Channels
(Unidirectional)

Ninth Street Studio

Technology Plan - Archdiocese of LA
Existing Video Network

March 1998   Page 1 of 1

LEGEND

Microwave Link

Analog ITFS Transmitter

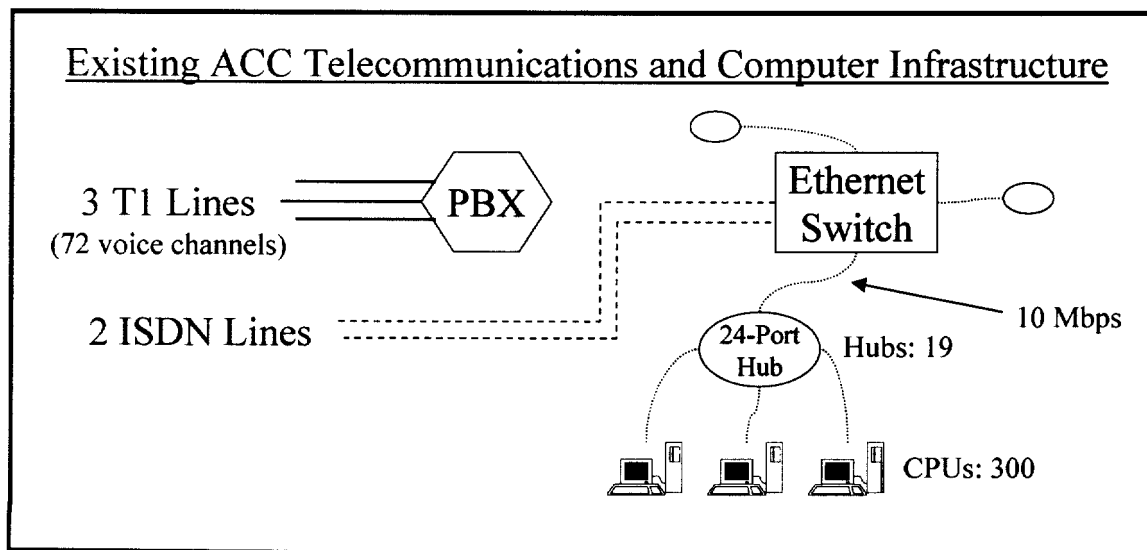Digital ITFS Transmitter

Number of Channels

3.5 Existing Archdiocesan Catholic Center (ACC) Facilities

The Archdiocesan Catholic Center (ACC) is located at 3424 Wilshire Boulevard, Los Angeles, California. The ACC is the central administrative office for the Archdiocese. The ACC's technology infrastructure currently consists of telecommunications and computer components.

The infrastructure of the voice and fax communication system at the ACC now consists of three incoming T1 voice trunks connected to a Lucent Definity PBX. This PBX provides both fax-mail and voice-mail. The ACC also has two ISDN lines, one used by Tidings/Vida Neuva and another used by the Development department for fundraising activities. These ISDN lines connect to Windows NT file servers located in the ACC.

The ACC's computer infrastructure consists of over three hundred computers. These computers are networked by Category-5 wiring via nineteen 24-port hubs and an Ethernet switch. This network is based on a Windows NT platform. Five file servers support the network. The Archdiocese's Internet web site is developed at the ACC, but is currently hosted at an ISP's site. The web site address is http://www.la-archdiocese.org. Below is a schematic of the ACC's existing technology infrastructure.

Existing ACC Telecommunications and Computer Infrastructure

3 T1 Lines (72 voice channels) — PBX

2 ISDN Lines

Ethernet Switch

24-Port Hub   Hubs: 19   10 Mbps

CPUs: 300

4 Strategic Technology Integration Initiative

Technology integration refers to the effective use of technologies to meet specific goals related to teacher and student outcomes. Technology helps educators address various learning styles, aids in classroom management, and helps prepare students to function in today's high-tech society. Technology also facilitates the sharing of resources across instructional and administrative functions throughout the Archdiocese.

Technology integration is important because it maximizes limited resources, allows for economies of scale, and facilitates information sharing. The Strategic Technology Integration Initiative is designed to guide the Catholic schools in the Archdiocese from a more traditional curriculum into one in which integrated technologies are utilized.

This initiative is founded on a common belief that students and teachers need greater access to technology for word processing, communicating, and accessing and managing information. It is important for students and teachers to access and utilize information through the use technology. In this age of technology, students are done a disservice when they are not prepared to enter a world where technology literacy will be demanded of them.

The approach taken to make this initiative a reality for the Archdiocesan schools is outlined below.

4.1 Approach

To succeed, this initiative must have goals, strategies for meeting these goals, professional development to ensure the strategies are implemented, and the means to evaluate whether or not these goals have been met. First, goals must be set. These goals should correspond to the overall initiative, or vision. After setting goals, then the strategies for achieving these goals can be developed. Strategies should provide clear directions for

achieving each goal. Professional development also is an important component. Properly preparing faculty and staff insures that the strategies are implemented correctly. Finally, evaluation methods should be put in place to monitor progress towards the initiative's goals.

4.2 Goals

The first step towards successfully implementing the Archdiocesan technology integration initiative is to develop goals. Fundamentally, this initiative's aim is for each Catholic school in the Archdiocese to integrate technology into its instructional and administrative procedures. The Archdiocese and the schools should strive to reach the following goals:

- maximize student learning;

- address various student learning styles by using technology;

- prepare students to function in today's high-tech society;

- prepare staff for the use of technology;

- use technology to simplify classroom management;

- use technology to reduce the administrative burden placed on teachers; and,

- use technology to maximize the use of limited resources by 1) sharing information re-
sources across instructional and administrative functions throughout the Archdiocese;
2) and taking advantage of economies of scale whenever possible.

These goals are the basis for the Strategic Technology Integration Initiative.

4.3 Strategies

The second step in the initiative's implementation is the development of strategies. The strategies to properly integrate technology into the schools are based on three elements: technology tools, methods, and connections.

Technology Tools
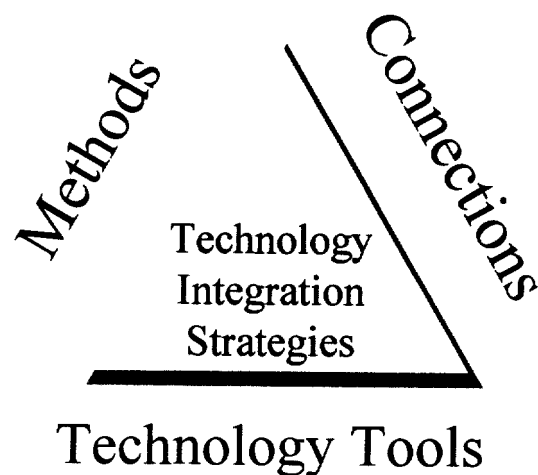
These three elements support each of the plan's goals in a number of ways. For example, an Internet connection may help "prepare students to function in today's high-tech society" by allowing the students to conduct research on the Internet. The table on the following page gives examples of how each strategic element supports the plan's goals.

Each strategic element can further be divided into two components: 1) existing vs. new, and 2) Archdiocesan vs. individual school. These elements and their components can be combined in hundreds of ways to develop site-specific strategies which support the technology integration goals. For example, existing school methods may be used in conjunction with new school technology tools and existing Archdiocesan connections.

This plan specifically addresses the Archdiocesan components of the three elements. For individual schools, this plan only provides a general framework to follow. Specific school plans will be developed by the individual schools based on the guidelines set forth in Section 7 of this plan.

Potential Applications of the Three-Element Strategy to Achieve the Archdiocesan Technology Integration Goals

Goal	Technology Tools	Methodologies	Connections
Maximize student learning.	Computer assisted instructional programs; Educational audio and video programs	Self-paced instruction; Instruction from experts; Multimedia lessons	Internet discussion groups; Connect to experts outside the classroom or school
Address various student learning styles by using technology.	Computer programs which can be customized to different students	Lessons which utilize a mix of new/old methods and technologies to reach students.	Access to different types of media for various students
Prepare students to function in today's high-tech society.	Workstations equipped similarly to the workstations students will find "in the real world"	Lessons which incorporate the use of current hardware and software	Internet connections allowing students to explore and learn the Internet
Prepare staff for the use of technology.	Training in the operation of hardware and software	Training in effective technology integration.	Web or video-based training; Use of e-mail
Use technology to simplify classroom management.	Lesson planning software	Electronically develop lesson plans, lesson content, etc.	Share lessons and content with teachers in other classrooms, schools, etc.
Use technology to reduce the administrative burden placed on teachers.	Administrative computer programs	Electronically complete attendance, grade reporting, etc.	Submit attendance, grades, etc. via LAN
Use technology to maximize the use of limited resources by sharing information resources across instructional and administrative functions throughout the Archdiocese and taking advantage of economies of scale whenever possible.	Local file servers, shared network devices (e.g. printers), Archdiocesan Digital Multimedia Server	Purchase services and/or equipment as a group	Shared access to content (e.g. Internet, video programming, etc.) and output devices

4.3.1 Technology Tools

Technology tools play an important role in the strategic integration of technology into education. Technology tools are the tools used to facilitate the teaching and learning process. These tools act as an interface between students and content. Examples of technology tools include such things as educational videos, digital encyclopedias, etc. Technology tools involve both hardware and software.

4.3.2 Methods

Methods are another key element in the strategy to integrate technology into education. Methods refer to the integration of technology tools and connections with the teaching and learning process. Methods fall into two categories: instructional and administrative.

Examples of instructional methods include:

- computer assisted instruction
- online resources such as the Internet
- various technologies to address different learning styles
- presentation hardware and software to enhance classroom instruction

Examples of administrative methods include:

- classroom management software
- grading and reporting programs

These are just a few examples of the many new and emerging technologies that can be incorporated into instructional and administrative methods.

4.3.3 Connections

Connections are the third element in the strategic plan to integrate technology into education. Connections are the means by which information is transported to schools and classrooms. Connections relate both to communications within a school and communications between a school and the outside world (e.g. other schools, the Archdiocesan Catholic Center, the Internet, etc.) Modern connections reduce the effect of time and space, allowing the learning place to encompass a much broader environment. These connections allow students and teachers to conduct research and interact with other learners in new and exciting ways.

4.4 Professional Development

The third step in the Strategic Technology Initiative is professional development. Professional development prepares educators to use technology tools, methods, and connections. Before they can effectively utilize these technology implementation strategies, educators should receive training in the operation and use of existing and emerging technology tools; have the opportunity to learn and develop new methods for integrating technology into curriculum; and have access to connections and have the knowledge to effectively use these connections in their instruction, research, etc.

Put simply, professional development for technology integration requires that educators know **how**, **why**, and **when** to use technology. Educators shall stay informed about current computer and technology trends in education by participating regularly in training and in-service programs. The Archdiocese recommends that the following professional development activities take place at every school:

- Administrators offer training and in-service incentives.
- Administrators provide time for presentations on computer and technology topics of general interest and need. These presentations will include creative uses of proven software and hardware, as well as information about new products.

- Administrators provide on-site training by professionals as needed to promote computer and technology competency. This training may include contracting with consultants/experts, acquiring training videotapes, arranging for vendor presentations, or having guest speakers from other schools.

- Educators seek personal growth in computer and technology competency by participating in classes and workshops offered by local universities and governmental organizations, museums, computer stores, and vendors, and by attending professional conferences.

4.5 Evaluation

The fourth and final step in the initiative's implementation is evaluation. Evaluation of technology integration must occur on a regular basis. It allows schools to learn from their past successes and failures, as well as the successes and failures of other schools. Evaluation is often neglected or overlooked, but it is as important as the other elements of the integration plan.

Proper evaluation insures that school resources are being used in the most effective manner. Without it, limited resources can be wasted. The financial constraints at many schools make evaluations absolutely essential to the long-term ability of schools to purchase and maintain new technology.

Regular evaluations also allow for mid-course corrections. Periodic reviews help insure that a technology project is on track and that the factors which originally warranted the project are still valid.

Metrics will be developed to monitor the effectiveness of the overall technology plan and the individual school technology plans. The Department of Catholic Schools for the Archdiocese is responsible for developing and monitoring these metrics. Feedback from these metrics will allow the Archdiocese to identify the stronger and weaker elements of the technology integration plan.

These metrics will monitor both student and educator outcomes. For example, correlation analysis of standardized test scores may be performed with any of the following data:

- Student computer-hours per week
- Number of computers per student
- Number of computers per teacher
- Hours of professional development

5 Archdiocesan Infrastructure

The Archdiocesan components of the three strategic elements (technology tools, methods, and connections) are described below.

5.1 Technology Tools

The Archdiocese is developing a unique technology tool called the Digital Multimedia Server System (DMSS). The system is designed to meet the multimedia needs of students and instructors at the Catholic schools in the Archdiocese. It will acquire, store, and transmit video and data to and from schools. The DMSS will simplify the Archdiocese's current studio operations and it will also allow the Archdiocese to use the Internet for acquisition and delivery of program material. The system will be hosted at the ACC. A proposed budget for the DMSS is shown in Appendix A.

Initially, the system will operate on a fixed programming environment, with support for call-in scheduling of playback over the existing ITFS network. The DMSS will support the storage and playback of 5,000 hours of content. The system will support 22 concurrent incoming and outgoing data streams. These data streams will represent information from a variety of sources. These sources include both analog and digital video and audio signals, as well as other data formats which may originate from anywhere in the world via the Internet and other sources. One potential source for multimedia content is the Los Angeles County Office of Education (LACOE.) LACOE currently maintains a vast library of multimedia content. In the future it may be possible to access this content with a link to the main offices of the LACOE.

As the DMSS matures and as schools and teachers become more network-enabled, the emphasis on fixed programming will be lessened and teachers will become more responsible for the scheduling of playback over the Archdiocesan intranet. Eventually, the DMSS will allow instructors at remote sites to electronically request video or other stored

content and retrieve the information via the Archdiocesan intranet. The information will be stored in a digital format so that, with the right tools and connections, teachers may even be allowed to custom-craft multimedia presentations at their desk from materials stored on-line.

If the system is fully developed and the funding is available, the DMSS will become the central hub for all acquisition, archival, and service of multimedia assets, including video, audio, and future network-enabled mediums. Operation of the system can be split into four labor categories:

Asset Acquisition	This activity occurs daily, from off-air sources and from tape. The raw asset can be acquired automatically, through the use of a scheduling function in the automation system, or interactively with the operator controlling the beginning and end points of the capture process. The operator reviews the acquired material, assigns asset information to it (including start and stop points in the captured MPEG stream to be used at playback), and releases the asset to the library for archival and future playback.
Asset Management	Grooming of the asset library allows the operator to comply with time-limited copyrights, remove inactive assets, and double-archive assets for backup purposes. As the use of search tools is introduced, the operator will become responsible for managing the searchable information associated with stored assets as well.
Scheduling	The operator maintains the asset playback schedule via an automation system scheduler and then monitors playback of the assets. The web-enabled playback scheduler allows teachers to request programming dynamically.
Maintenance	The operator monitors the condition of the system (disk space, system resource usage, network traffic, etc.) and performs corrective actions. The system is expected to require little day-to-day maintenance.

Over time, the system's operations personnel will become more like librarians and editors, and less like master-control operators, since the bulk of their work will become focused on asset acquisition, editing, and management. Of the above categories, it is ex-

pected that the operator will be performing asset acquisition and management most of the time since they will be the most time-intensive activities.

5.2 Methods

The Archdiocese plans to encourage the integration of technology and the adoption of new methods. The Archdiocese will specifically support new methods in two ways:

1. The Archdiocese will encourage continuing growth in computer and other technology competencies by organizing and sponsoring whole Archdiocese technology in-service days, technology video-conferences, and by arranging demonstrations and training sessions by vendors.

2. The Archdiocese will organize and give direction to a technology coordinators' committee and expect attendance at meetings by a representative of each school.

5.3 Connections

The Archdiocese plans to enhance connections within the Archdiocese. The Archdiocese has requested that Pacific Bell provide it with a DS-3 connection to the Internet. The Archdiocese plans for Archdiocesan schools to utilize this Internet connection via the ITFS system.

Modifications to the existing ITFS system will be required to allow for this Internet connection to be accessed by schools. The current ITFS system can be configured to allow for one-way, "downstream" delivery of data to schools with a return path coming via an ISP. In the near future, it may also be possible to configure the ITFS system to provide high bandwidth, two-way data connections. Both of these scenarios are described below.

5.3.1 One-way ITFS Data Network

The Archdiocese primarily uses ITFS to deliver video content to its schools[1]. In 1997, the FCC changed its rules to allow ITFS licensees to begin broadcasting data. Using a one-way ITFS data configuration, schools can receive web pages, e-mail, and other Internet content at speeds much higher than normal phone lines. Under this system, schools still utilize a separate Internet service provider to *send* information across the Internet; however, information *received* by school comes via the ITFS system. Taking advantage of this would greatly increase the speed at which school computers could access the Internet or other information sources. The following diagram illustrates the process.


Proposed One-way ITFS Data Network

---
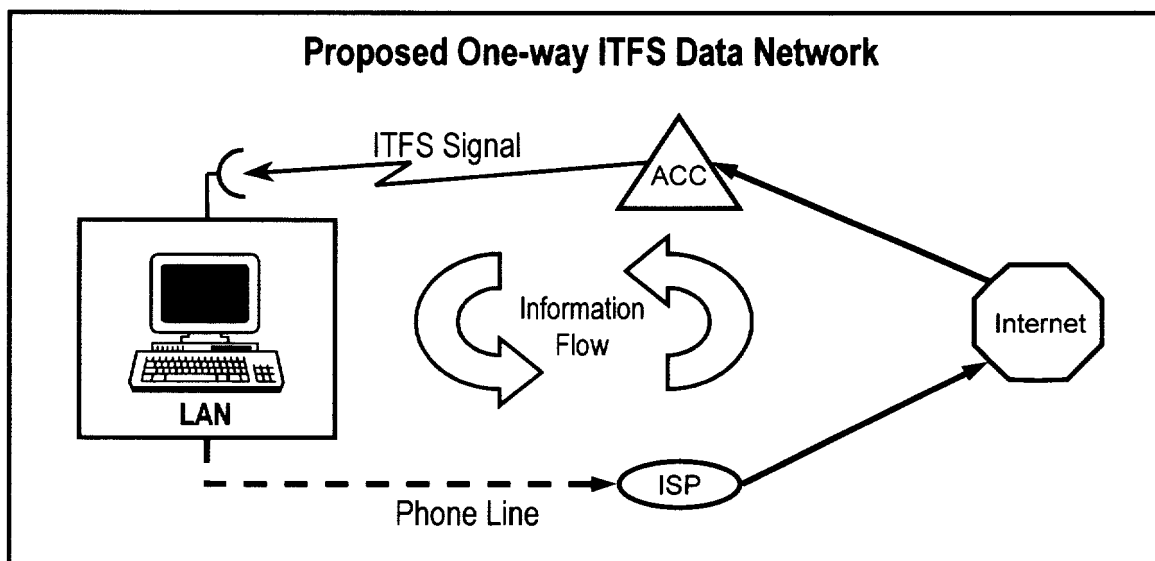
[1] The high schools receive video content through Channel One, a cable television educational service. In order to take advantage of the one-way ITFS data network, the high schools would need to install or reactivate on-premise ITFS equipment.

5.3.2 Two-way ITFS Data Network

The existing ITFS system has a very limited return channel for "upstream" communications. This limits the ability of ITFS systems to receive data from school sites. However, the FCC is currently considering new ITFS rules which would allow for expanded bidirectional capability. If the FCC approves these rules, the Archdiocese will be able to use some of its allotted ITFS channels for return signals. This will enable the creation of a wide-area network employing ATM signals traveling via ITFS channels. The wide-area network would function as follows:

1) The servers in most schools will use the bidirectional ITFS to connect directly to the server at the ACC. Microwave transmitters at each ITFS transmitter site will provide a DS-3 backbone through the Archdiocese.

2) The servers in some schools will continue to connect to ISPs directly. Communication between servers at these schools and the server at the ACC would take place over the Internet.

The following diagram illustrates the proposed two-way network.

Proposed Two-way ITFS Data Network

ITFS Signal

ACC

Internet

Information Flow

LAN

---
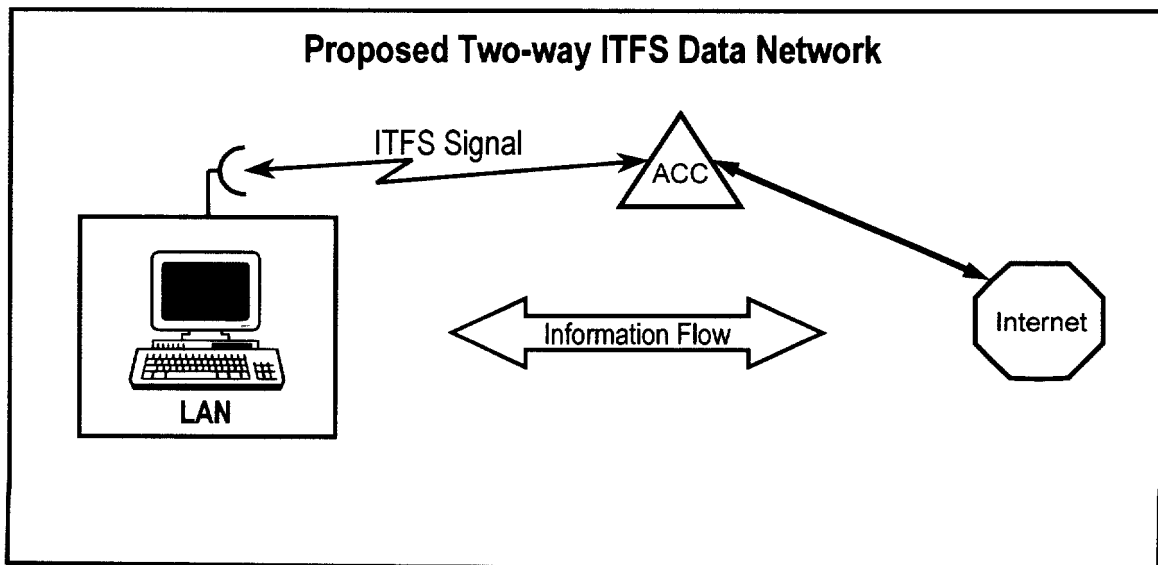
6 Individual School Guidelines

As mentioned previously, this plan is the higher level of a two-tiered blueprint for the Archdiocese. Depending upon the factors described in Section 7, each individual school in the Archdiocese may or may not have its own technology plan. However, all schools should attempt to comply with the guidelines set forth in this section for technology tools, methods, and connections. By relying on a basic set of guidelines, Catholic schools in the Archdiocese will have greater freedom to share information and resources.

Compatibility provides a common denominator for the integration and operation of diverse elements of a system. Compatibility guidelines for technology integration insure that schools can interact effectively (1) within themselves (e.g. classroom-to-classroom), (2) with other schools, (3) with the Archdiocesan Catholic Center, and (4) with the Internet. Technical information about the proposed Archdiocesan video and data network is presented in Section 5 of this report.

This section discusses guidelines for schools to use in implementing technologies. Specifically, this section addresses the plan's three strategic elements: technology tools, methods, and connections.

6.1 Technology Tools

The Archdiocese has developed compatibility guidelines for technology tools such as network protocols, new computers, hardware for interaction with the Archdiocesan network, file servers, network hardware, and communication links. These guidelines are designed to facilitate the sharing of resources via the proposed Archdiocesan network. The table on the following page summarizes these guidelines.

Basic Technology Compatibility Guidelines for Archdiocesan Schools

	Preferred	Minimum
Network Protocols and Speed	• The network protocol shall be TCP/IP. • Each computer shall connect to the network with a 10/100 Mbps NIC.	• Each computer shall connect to the network with a 10 Mbps NIC.
New Computers		
Base	• Current generation processor (i.e., Intel Pentium II or Macintosh PowerPC G3) • 32 MB of RAM • 3 GB Hard Disk Drive • PCI Bus • 3.5 Inch Floppy Disk Drive • Keyboard and Mouse • 3 Year Warranty	• Previous generation processor (i.e., Intel Pentium or Macintosh PowerPC 604) • 16 MB of RAM • 1 GB Hard Disk Drive • PCI Bus • 3.5 Inch Floppy Disk Drive • Keyboard and Mouse • 1 Year Warranty
Peripherals	• SVGA Video Card • CD-ROM • 15 Inch Color SVGA Monitor (0.28 mm dp) • 32-bit PCI NIC 10 or 100 Mbps • Speakers, Sound Card and Microphone	• VGA Video Card • 14 Inch Color VGA Monitor • 32-bit PCI NIC 10 or 100 Mbps
Operating System	• MS Windows 95, Windows NT Workstation, or Mac OS 8.1	• MS Windows 95, Windows NT Workstation, or Mac OS 8.1
Software	• MS Office Professional 97 • Anti-Virus software • Other application software as necessary • Current version of Internet Explorer or Netscape Navigator	• Application software as necessary • Current version of Internet Explorer or Netscape Navigator

Hardware for Interaction with Archdiocesan Network	• Preferred "New Computer Configuration"
	• Dedicated connection to either:
	    1 Internet service provider
	    2 Archdiocese file server
		• Minimum "New Computer Configuration"
		• Dial-up Internet connection
		• Phone line access and a modem
		• Web browser software
		• MS Exchange Client or Outlook software

File Server	As needed to match requirements, typically:	No file server
Hardware	• Pentium II Processor or PowerPC G3 • 64 MB of RAM • 8 GB Hard Disk Drive • PCI Bus • 3.5 Inch Floppy Disk Drive • Redundant components as necessary • Backup device	
Operating System	• Microsoft Windows NT Server, UNIX, or AppleShare IP 5.0	
Software	• Microsoft BackOffice Server or alternate product with similar functionality: I. E-mail or Groupware server II. Proxy server III. Database server IV. Systems management server • Dr. Solomon's Anti-Virus	
Network Hardware	• Router or CSU/DSU Matching the Server's Connection Type • 100 Mbps Hubs or can upgrade to 100 Mbps	• 10 Mbps Hubs

A general guideline for all technology tools decisions is this: before purchasing hardware, software, or support services, first resolve all planning, connectivity, software, maintenance, support, service, staffing/responsibility, and other related issues.

6.1.1 Network Protocols and Speed

Each school will have a LAN connecting all computers in the school, both servers and workstations. The network will run at a speed of either 10 or 100 megabits per second (Mbps) over category-five (CAT-5) wiring. The preferred network speed is 100 Mbps.

6.1.2 New Computer Configuration

New computers should be based on current Intel (e.g. Pentium II) or Apple (PowerPC G3) microprocessor platforms. At a minimum, new computer purchases should be limited to previous generation microprocessor platforms (e.g. Pentium and PowerPC 604.)

All new computers should have a PCI bus, a 3.5 inch floppy disk, keyboard and mouse. The preferred computer configuration includes a 3 gigabit hard drive, 32 megabits of RAM, and a three-year warranty. At a minimum, a new computer should have a 1 gigabit hard drive, 16 megabits of RAM, and a one-year warranty.

Operating systems for new computers are based upon the processor platform selected. In all cases, the most current version of an operating system should be installed on new computers.

Software for new computers will vary depending the use of the computer and the budget for software. MS Office Professional 97 is the current preferred software suite for sharing information between schools. The most current version of Microsoft Internet Explorer or Netscape Navigator should be installed and all machines so that HTML documents can be accessed and shared by all computers.

6.1.3 Hardware for Interaction with Archdiocesan Network

Where economics permits it, dedicated connections are preferred to "dial-up" connections. These dedicated connections may be to either an ISP, or via the proposed ITFS data network (one-way or two-way.)

6.1.4 File Server Configuration

Generally speaking, file servers are required when multiple computers need to communicate and/or share resources. File servers should be based on the Windows NT, UNIX, or AppleShare IP 5.0 operating system. The most basic computer networks do not require a file server.

6.1.5 Network Hardware

Consistent with the guidelines for network protocols and speed, all network hardware such as hubs and routers should at a minimum support 10 Mbps networking. 100 Mbps networking is preferred.

6.1.6 Communication Links

Dedicated communication links are favorable over "dial-up" connections. See Section 6.1.3.

6.2   Methods

Methods involve the application of technology to curriculum and administration. Technology integration occurs when school faculty and staff are equipped to properly utilize technology applications.

As outlined in Section 4.4, it is recommended that schools follow these professional development guidelines:

- Administrators offer training and in-service incentives.

- Administrators provide time for presentations on computer and technology topics of general interest and need. These presentations will include creative uses of proven software and hardware, as well as information about new products.

- Administrators provide on-site training by professionals as needed to promote computer and technology competency. This training may include contracting with consultants/experts, acquiring training videotapes, arranging for vendor presentations, or having guest speakers from other schools.

- Educators seek personal growth in computer and technology competency by participating in classes and workshops offered by local universities and governmental organizations, museums, computer stores, and vendors, and by attending professional conferences.

6.3 Connections

Ideally, every classroom will have a connection to other classrooms, a connection to the Internet, e-mail service, telephone service, and facsimile service. This connection will enable students and teachers to conduct and share research.